Digital innovation in finance: households, firms and the global financial system

Background note for ECOFIN meeting, 18 September 2026, 14:00-16:30 CEST, Dublin, Ireland

Digital innovation in finance is progressing rapidly. New digital technologies are transforming how consumers pay, save, borrow, invest and insure. Equally, firms are also evolving, changing how they access capital, manage risks and reach new markets. Crucially, much of this progress has come from active collaboration between the public and private sectors, with central banks and other authorities providing the trusted foundation upon which the private sector operates.

The ultimate test of innovation in the financial sector is the extent to which it improves outcomes for individuals, households and businesses. Empirical evidence has established that digital innovation can lower the costs of financial intermediation (Philippon (2019)). In many jurisdictions, digitalisation of payments and the entry of new players like fintechs have furthered financial deepening by expanding credit to new borrowers (Ouyang (2026), Alok et al (2024), Beck et al (2022)) and enhancing formal savings, particularly in emerging market and developing economies (Bachas et al (2021)). The entry of fintech companies in the cross-border payments market has lowered remittance costs and increased competition (Du et al (2026)). Digitalisation has also supported the growth of small firms (Agarwal et al (2026), Hau et al (2024)) and enhanced the resilience of households (Jack and Suri (2014)). Beyond digital payments and credit, innovations on the horizon, such as tokenisation of assets, promise to broaden access in capital markets by fractionalising illiquid assets, thereby enhancing liquidity and accessibility.[1]

Around the world, a significant part of these gains can be attributed to innovation led by the public sector. Fast payment systems (FPS) are a leading example of such innovation. Over 120 jurisdictions now have access to FPS and many of these are operated by central banks, often in close cooperation with the private sector. Examples include the Single European Payment Area (SEPA) Instant Credit Transfer in Europe, Pix in Brazil, Unified Payments Interface (UPI) in India and FedNow in the United States, among others. By enabling a verifiable trail of payments data that enhances credit access, FPS have boosted household incomes, business activity and economic output (Dubey and Purnanandam (2024)). Interoperability enabled by publicly provided FPS is also linked with increased retail participation in financial markets (Ayyagari et al (2025)). Other innovations led by the public sector that have reshaped the financial sector include digital identity, data sharing infrastructure (eg open banking frameworks in the EU, UK, Brazil, Korea and Türkiye) and modern wholesale settlement infrastructures. In many economies, work is underway on retail central bank digital currencies (CBDCs). Such foundational digital innovation has enabled the private sector to innovate further and provide tailored services to end users (eg TWINT in Switzerland, BIZUM in Spain, WERO in France, Germany and Belgium).

Well-designed innovation, based on close coordination between the public and private sectors, may also boost regional financial integration. It can enhance resilience by providing regional alternatives, particularly for critical cross-border payments infrastructure, which is currently dominated by two card networks (Visa and Mastercard). To be sure, central banks have long provided domestic payment infrastructure as a public good upon which the private sector can innovate further. The current focus in many economies is on extending this role to cross-border payments. Several central banks are taking the

[1] To be sure, the ability to close the gap in retail capital market participation depends on solving deeper structural barriers that technology alone cannot address. These include, for example, insufficient financial literacy or pay-as-you-go pension systems that may disincentivise capital market participation (Draghi (2024), Demertzis et al (2024), van Rooij et al (2011)).

lead on interlinking FPS across borders (eg Bank Negara Malaysia, Bank Indonesia, Bangko Sentral ng Pilipinas, Bank of Thailand and Monetary Authority of Singapore in Nexus). Similarly, Project Agorá, a BIS initiative, has brought together 8 central banks (including Bank of France on behalf of the Eurosystem) and a large group of private sector financial institutions, and demonstrated atomic settlement of wholesale cross-border transactions. In the euro area, the work on the digital euro, as well as on Pontes and Appia, hold significant promise and serve as an example for other economies.

Yet the benefits of digital innovation in finance are not automatic, and they may not be evenly distributed. Unregulated or poorly regulated private innovation can harm consumers and reduce welfare. For example, in crypto-asset markets, which have developed largely outside the regulated financial system, most retail users in nearly all economies have incurred losses, with the largest losses concentrated among smaller investors (Cornelli et al (2023a)). In the area of retail investment, digital engagement practices such as gamification make trading more immersive and can encourage excessive risk-taking, particularly among younger and less experienced investors (IOSCO (2025)). Similarly, the use of new digital credit products like "buy now pay later" schemes is associated with younger, more indebted individuals with less education, higher delinquency rates and lower credit scores (Cornelli et al (2023b)). Publicly led innovation may not be immune to risks, either. For instance, in some markets, the adoption of FPS has come hand in hand with an increase in fraud, prompting public authorities to revamp redressal mechanisms for consumers (World Bank (2023)). These risks do not undermine the impetus for innovation in the financial sector, but they imply that the overall welfare impact depends on the regulatory framework within which such innovation operates.

Digital innovation is also reshaping the global monetary and financial system as a whole. New financial architectures based on distributed ledger technology (DLT) and tokenisation are being introduced in response to the limitations of the current system.[2] Cross-border payments remain slow and costly, access to credit and capital markets is still uneven across households and firms (including in the EU) and frictions like limited interoperability persist in many markets. Tokenisation holds the promise to address some of these limitations by reducing frictions, promoting greater efficiency and enabling new functionalities. Modern-day financial transactions rest on a sequence of actions including messaging, reconciliation and settlement. Tokenisation allows these actions to be integrated in a single, seamless operation. It allows for composability, whereby assets and money exist as executable tokens on a shared ledger. It also allows for programmability, which refers to the ability to execute transactions automatically and conditionally through smart contracts. Together, these capabilities can reduce settlement delays, lower counterparty and operational risk, reduce pre-funding needs and streamline transactions (BIS (2025)). For households and businesses, this can translate into cheaper and faster financial transactions and wider access to financial markets.

The public and the private sectors are experimenting with tokenisation across a range of use cases. Project Pine, a joint initiative of the Federal Reserve Bank of New York and the BIS innovation hub, provides a prototype for monetary policy implementation using tokenised reserves and tokenised collateral. Commercial banks are also exploring the tokenisation of deposits, allowing deposit-linked payments to be programmed and settled instantly. Experiments jointly led by financial institutions and central banks, such as Project Agorá, have demonstrated the benefits of tokenisation in executing cross-border payments. Beyond financial institutions, many national and regional authorities are issuing tokenised government bonds (eg Republic of Slovenia, Hong Kong SAR, European Investment Bank, the World Bank and cantons in Switzerland like Basel, Lugano, Zurich and St Gallen). Early evidence shows that

[2] Distributed ledger technology refers to a way of recording and updating information across a shared database that multiple parties can access and trust, without relying on a single central record-keeper. Each participant holds a synchronised copy of the ledger and transactions are validated and updated according to a shared set of rules. Tokenisation is the process of recording claims on real or financial assets that exist on a traditional ledger onto a programmable platform (Aldasoro et al (2023)). The underlying asset is transformed into a token that combines the asset itself with the rules governing it.

tokenised government bonds have lower bid-ask spreads than their conventional counterparts (Aldasoro et al (2025)). In terms of real-world assets, real estate tokenisation is growing, particularly in underserved markets that lack access to traditional credit (Cornelli (2025)). Other recent private applications of tokenisation include stablecoins, which are tokens on a programmable ledger that aim to maintain a stable value against a reference asset, typically a major currency.

In this new era of financial innovation, central banks continue to play a key role in preserving monetary and financial stability. In modern economies, central banks sit at the base of the two-tier monetary system, issuing the economy's unit of account and providing reserves as the ultimate means of settlement for commercial banks. On top of this foundation, commercial banks create deposits that individuals and firms use day to day and compete to provide credit and services that support economic activity. This architecture delivers the singleness of money, the property that cash and deposits of different banks are accepted interchangeably at par, providing a common economy-wide yardstick. [3]

This foundational role does not diminish in a tokenised world. Every financial transaction has two legs: the asset changes hands and at the same time, money also changes hands to settle the transfer of assets. Tokenisation can be applied to both legs, but its benefits can only be safely realised if the money used to settle is beyond doubt, accepted at par and final. This is precisely what settlement in central bank money, using tokenised reserves, provides (and where instruments like stablecoins fall short).

Tokenised reserves, when brought together with tokenised commercial bank money and tokenised government bonds, can form the backbone of the future financial system. In such a system, tokenised reserves provide the trusted settlement asset and tokenised commercial bank money mirrors the current two-tier system by providing the elasticity needed to support the real economy. Tokenised government bonds provide a benchmark safe asset, enhancing liquidity and supporting a wide range of financial transactions. This trilogy can enable new capabilities and efficiency gains, supporting a vibrant tokenised financial system (BIS (2025)). For households and firms, the trilogy of tokenisation could translate into faster and cheaper cross-border payments, more efficient securities markets and broader access to savings and investment — for instance, through the fractionalisation of assets that today require large minimum outlays (BIS (2025)). Realising these gains while preventing fragmentation and the lack of singleness requires a financial system anchored in tokenised reserves that can settle tokenised transactions at par, supported by tokenised commercial bank money and tokenised government bonds.

The enduring role of the public sector in spurring financial innovation is a useful lens to think about the design of the global financial system of the future. The two-tier system anchored in central bank money has proved durable, delivering the singleness, stability and trust on which economic transactions depend. In many cases, the public sector has provided the foundation on which recent financial innovation has been built. The task before policy makers and regulators, therefore, is to build on the strengths of the current financial system while being cognisant of the gaps that persist. Throughout, the yardstick for financial innovation should be whether it improves outcomes for individuals, households and businesses.

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[3] In a typical transaction, when a business receives a payment from a customer at another bank, neither party needs to check which bank the other uses or worry about its creditworthiness. This is not automatic. It holds because banks ultimately settle with one another in central bank reserves, at par, in the sovereign unit of account. The trust and coordination that underpin everyday transactions rest on this final settlement in central bank money. In this sense, central banks ensure the singleness of money and act as the trusted anchor that makes different forms of private money function as a single, uniform currency.

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